

## **STREET CONSTRUCTION (E-PLAN) REQUIREMENTS**

### **( \*\*\* SUBDIVISION \*\*\* )**

Requirements for and information on an “E-Plan” for Subdivisions shall contain, but not limited to, the following

#### **1. GENERAL REQUIREMENTS:**

- 1.1. **PLAN SIZE:** All plans shall be submitted on standard E-size sheets - 22” high x 34” wide. Each sheet shall have a border of ½” from the top, bottom, and right edges and a 2” border from the left edge with the ODOT Title Block. Refer to Ohio Department of Transportation, Location and Design Manual Volume 3.
- 1.2. **PLAN LAYOUT:** Orientation of plan views shall be with the north arrow up to TOP of plan sheet or to the RIGHT.
- 1.3. **GRAPHIC SCALE:** Show on each plan sheet or specific view (plan/detail/section/profile) the numeric scale AND a graphic of the scale.
- 1.4. **PLAN NUMBER ASSIGNMENT:** The street plan number will be assigned by the Accela plan tracking system at the time of submittal for initial review. For initial submittal – use the “X” in each of the 4 positions for the plan sequence number.
- 1.5. **SECTIONS/PARTS:** Each SECTION or PART of a preliminary plat shall have its own unique “E-Plan” with associated Final Plat.
- 1.6. **STREET STATIONING:** Station the centerline of each street. Each street is to have its own stationing. Stationing should progress up from SOUTH-to-NORTH and from WEST-to-EAST. When establishing new stationing, set an even station at the centerline of the nearest street intersection and describe in the (basis of stationing) statement. Provide a “Basis of Stationing” statement explaining the origin and basis of stationing when extending, widening, or connecting onto an existing street. Station equations or negative stationing on the plans will not be accepted.
- 1.7. **REFERENCE TO RELATED DRAWINGS:** Notate on the plans any drawing related to or interfacing with, or adjoining, this project. Examples of drawings to reference are adjoining Parts or Sections of a residential subdivision shown on other plans; CC-plans on private storm sewers that tie-in to a storm sewer on this plan; sanitary sewer plan; street construction plans for other active projects this project interfaces with or ties into; or street construction plans of other projects which extend a street from this project.
- 1.8. **SURVEY HORIZONTAL & VERTICAL CONTROL:**
  - 1.8.1. Horizontal Control: The Ohio State Plane Coordinate System and North American Datum of 1983 (2007 NSRS).
  - 1.8.2. Vertical Control: North American Vertical Datum 1988 (NAVD 88) shall be used on all projects. All temporary benchmarks and project/site elevations shall be based upon a source bench mark of a third order or better monument system established and maintained by the Franklin County, OH Engineer’s office. The 1929 North American Vertical Datum (NAVD) datum should only be used when the 1988 (NAVD) elevations are unavailable and must be approved, in writing, by the City in advance of initial plan submittal.
- 1.9. **PLAN REVIEW FEES:** Fees are based on an hourly rate and are invoiced at the time all review comments have been addressed. Final payment must be received before mylars are routed for signature.
- 1.10. **CITY ADA TRAINING REQUIREMENT:** As a minimum, the Engineering consultant’s project manager and design engineers assigned to the project must have had ADA ramp training by the City of Columbus. ADA training sessions are listed on the website <http://pubserv.ci.columbus.oh.us/transportation/ADA/ADATraining.htm>
- 1.11. **TRAFFIC SIGNAL DESIGN:** All traffic signal and interconnect design work shall be performed by an Engineer that has met the ODOT prequalification requirements for Basic Traffic Signal Design and is familiar with the City of Columbus traffic signal systems engineering recommended practices, policies, standards and specifications. The Title Sheet shall be stamped and signed by the Traffic Signal Engineer preparing the traffic signal and interconnect plan sheets.
- 1.12. **PHASED CONSTRUCTION PROJECTS.** For projects constructed in phases, the phase lines shall be clearly shown and labeled through out the plan set, Index Map, and Estimate of Quantities. The private

agreement, surety, and inspection fees and Plat shall encompass all phases of the plan and be in place prior to the start of construction of any phase. A plan with PARTS can NOT be phased.

1.13. **PLAN REVISION:** Once E-plans are signed, any change to the plan requires a plan revision. Refer to a separate document titled “Procedure for Revision of E-Plan (Private Development)”.

2. **SUBMITTALS:** Include the following with the submittal packet for the INITIAL “Plan Review”.

2.1. Completed APPLICATION of submittal for review.

2.2. APPROVED (signed) PRELIMINARY PLAT (overall Plat of entire site to be developed).

2.3. FINAL PLAT FOR THE SECTION/PART related to the construction plan set submitted.

(NOTE: FINAL PLAT will be routed for signature after all E-Plan and FINAL PLAT reviews/comments/corrections are complete and ready to route for signature.)

2.4. TEN (10) SETS of folded prints.

2.5. DIGITAL SUBMISSION: Provide CD of electronic images, properly formatted, per instructions on page entitled “Electronic Image File” (see end of this document).

2.6. SURVEY DOCUMENTATION: Provide a statement with the ‘Source Benchmarks’ (at least one, preferably two) that are Franklin County monuments, each identified by the County’s official designation and description, from which the project/site vertical and horizontal control are sourced from or have been tied back into. Provide the standard vertical and horizontal control method used and correction factors. Documentation shall include the survey firm and signed by the Surveyor.

2.7. FINAL PLAT:

2.7.1. Final Plat shall show the parcels to be developed related to the plan.

2.7.2. Provide a copy of PROPOSED R/W or EASEMENT DOCUMENTS (survey exhibit and description) of proposed Right-of Way (R/W) and/or easements required by the improvement areas (e.g. off-site improvements) not covered by the Final Plat.

2.8. SITE GRADING PLAN.

2.9. STORM DRAINAGE DESIGN: In accordance with the City of Columbus Storm Water Drainage Manual, latest edition.

2.9.1. Exhibits: Tributary map of drainage areas contributing to storm water flow in the R/W and onto the streets which are picked up by inlets and/or ditches and pipes.

2.9.2. Calculations: Pipe sizing, hydraulic grade line, pavement spread and depth, and inlet spacing/capacity.

2.9.3. Summary table and/or spread-sheets demonstrating compliance to City Storm Water Manual and Standards.

2.9.4. Report, signed and stamped by the Engineer registered in the State of Ohio, with summary and conclusions drawn from exhibits, calculations, and tables.

2.10. NON-STANDARD ITEMS: Submit manufacturer’s data, test data, strength characteristics, installation instructions, maintenance requirements on non-standard items (pavers, brick, granite curb, etc.)

2.11. PAVEMENT DESIGN: Provide soil report from a Geotechnical Firm and pavement calculations for street design per ODOT based on the ADT volumes as required by the Residential Street Pavement Design Policy.

# SHEETS in the PLAN SET

“Sample” sheets of an E-plan can be found, for guidance, on the City of Columbus website.  
<http://publicservice.columbus.gov/content.aspx?id=47082>

3. **TITLE SHEET: Refer to “E-Plan (Private Dev) Title Sheet” for layout format.**
  - 3.1. INDEX OF SHEETS: Lists the sheet title and sheet number.
    - 3.1.1. Sheets and information in the plan set should be titled and located in order indicated.
      - 3.1.1.1. Title Sheet
      - 3.1.1.2. Typical Sections
      - 3.1.1.3. ADT
      - 3.1.1.4. General Notes
      - 3.1.1.5. Estimate of Quantities
      - 3.1.1.6. Maintenance of Traffic
      - 3.1.1.7. Storm Water Pollution Prevention Plan
      - 3.1.1.8. Demolition Plan
      - 3.1.1.9. Plan and Profile (Street)
      - 3.1.1.10. Cross Sections (if Street Widening)
      - 3.1.1.11. Details.
      - 3.1.1.12. Master Grading Plan
      - 3.1.1.13. Storm Sewer Profiles
      - 3.1.1.14. Survey Coordinate Data - Storm and Water
      - 3.1.1.15. Pavement Marking and Signing
      - 3.1.1.16. Traffic Signal & Traffic Signal Interconnect
      - 3.1.1.17. Street Lighting
    - 3.2. PROJECT DESCRIPTION: Statement of purpose of the improvement (e.g. new subdivision, road widening, turn lane, etc.)
    - 3.3. OWNER/DEVELOPER: Full name of property Owner or legal business entity with address, contact name, phone/fax numbers, e-mail. List same information for Developer if different than property Owner.
    - 3.4. BENCH MARKS: The benchmarks and control points shall be tied into, or sourced from, at least one, preferably two, Franklin County Monuments
      - 3.4.1. Provide the ‘Source’ monuments with the Franklin County Engineer’s official designation; description of the Monument(s); coordinates (northing, easting); and elevation. Provide the method used to establish site/project benchmarks and control points from the ‘Source’ and correction factor.
      - 3.4.2. Reference the Horizontal DATUM and Vertical DATUM used (refer to GENERAL REQUIREMENTS).
      - 3.4.3. List of site/project vertical and horizontal control points established for the project.
    - 3.5. BASIS OF BEARINGS: Bearings shall be referenced to an official record of deed, plat or road improvement plan that has the bearing used. If plat, deed or plan is not referenced, then provide how bearings are established with reference to monuments (give official designation) on which the bearings are sourced from, or tied to, and the survey basis.
    - 3.6. CONSULTANT/ENGINEER: Firm Logo (if applicable). Engineer’s Seal. Full name of firm with address, contact name (responsible engineer), phone/fax numbers, e-mail. Signature line for the Engineer of Record.
      - 3.6.1. NOTE: Additional requirement of Traffic Signal Engineer’s P.E. stamp and signature on plans containing traffic signal or interconnect work – see SECTION 1.11.
    - 3.7. PLAN TITLE: For the project, provide name of the subdivision with Section#, Part# or Phase #. Each subsequent sheet shall carry the Plan Title and a sheet title describing the work shown thereon.
    - 3.8. INDEX MAP (Scale 1”=200’ minimum)
      - 3.8.1. Indicate boundaries of the improvement in relation to adjoining properties and major roads. Show jurisdictional boundaries of Corporation line(s) where applicable. Add SIGNATURE APPROVAL LINES for entities having jurisdiction, as applicable.
      - 3.8.2. Include the boundaries of entire site to be developed as shown on the Preliminary Plat.

- 3.8.3. "Sections" and/or "Parts" clearly outlined and labeled with the particular Section/Part highlighted (in BOLD) related to this plan and other adjoining Section/Parts, in lighter but legible font, shown with its respective D-Plan or E-Plan number in parenthesis.
  - 3.8.4. The "Section" or "Part" related to the plan SHALL match the Final Plat.
  - 3.8.5. Show the existing road(s) along the entire frontage of the site being improved from which the improvement will take access. Show existing curb cuts and streets (accessing other developments) along both sides of existing road(s). Show the existing road to the nearest intersection of a public road or if distance is considerable, provide a dimension from the corner of the Private Improvement site to the nearest public road intersection and a dimension to the proposed access street for the Private Improvement site.
  - 3.8.6. Where a proposed access street (to the Private Improvement) intersects with an existing roadway, locate and label the centerline and name of the proposed street intersection
  - 3.8.7. Show benchmark locations here and on street plans.
  - 3.8.8. Show Storm sewer lines and structures.
  - 3.8.9. Below the lower right hand corner of the INDEX MAP, provide a list of drawings required by other City agencies that are associated with the project, such as: Final Plat, Sanitary, Mass Grading, Storm (Private). Water (main line extension if required).
  - 3.9. ZONING INFORMATION: Provide the development name; zoning case number; certified address; and City Council Ordinance Number. For those 'not applicable', notate as 'N/A'
  - 3.10. LIST OF STANDARD DRAWINGS (ODOT and City of Columbus) and SUPPLEMENTAL SPECIFICATIONS: List the document number and date (issued) of all applicable to the project.
  - 3.11. LOCATION (or VICINITY) MAP: Notate and show site location related to major arteries, 270, 70, 71, 670 and label Federal/State highways, and corporation limits where applicable.
  - 3.12. SPECIFICATION: Statement of City Construction Material Specification applicable to the plan.
  - 3.13. SIGNATURE APPROVAL LINES: (include disclaimer statement).
    - 3.13.1. CITY OF COLUMBUS: sign-off by various Divisions
    - 3.13.2. OTHER ENTITIES: Provide signature line for other public entities having jurisdiction (e.g. County, Township, Municipality, State permit, etc.)
  - 3.14. REVISION BLOCK: Plan revision table with column headings of 'revision #', 'description' of revision, 'sheet(s)' revised, initial, and date. Locate at the lower right hand corner of the sheet.
  - 3.15. NOTICE FOR "OHIO UTILITIES PROTECTION SERVICE (OUPS)":
  - 3.16. DRAWING NUMBER: Drawing # as **XXXX-E** and sheet number (page number system X/XX)
  - 3.17. ODOT Title Block along the right side containing contact phone numbers and website.
- 4. TYPICAL SECTIONS:** Typical Section for each street showing:
- 4.1. Street NAME with (ADT design volume (not range) for the street in parenthesis).
  - 4.2. Typical section of Street, full width to the R/W lines, with build-up components labeled and features (sidewalk, lawn, slopes, curb & gutter (or berm), slopes shown between R/W lines.
  - 4.3. Pavement LEGEND of street build-up (pavement type, base, sub-base, curb/gutter, under-drain, sub-grade, etc.) with material, work item, thickness of each component.
  - 4.4. Street centerline STATIONING. Define the street limits and any transitions by station number.
  - 4.5. Quantity: Show unit quantity of pavement in square yards for each street.
  - 4.6. If proposed work is a continuation of (or adjoins) an existing street, verify that the proposed typical section conforms, as a minimum, to that of the existing street. Where existing record plans do not exist or pavement build-up (thickness and composition) is not shown on a record plan, borings to determine pavement build-up of existing streets is required. Provide the information with the initial submittal for review and approval of the 'proposed' pavement section.
  - 4.7. Widening: If widening is proposed on an existing street, the existing street is to be planed and over-laid using Item 448 as the surface course over the existing and proposed as determined by the City.
- 5. ADT (Average Daily Traffic) EXHIBIT.**
- 5.1. Result of traffic study/calculations with ADT (Average Daily Traffic) for full build-out of entire developed area as shown on the Approved Preliminary Plat and abutting properties for existing, planned, and future developments. Include all Sections and Parts of the subdivision with the Section (or Part) shown highlighted (or heavier weight lines) related to Plan AND Final Plat.
  - 5.2. Show distribution of the calculated ADT volume on the exhibit and the ADT for each street and/or street segment. ADT ranges should not be shown.

5.3. Residential collector and higher-classification streets shall include ADT for all through traffic and locally generated traffic.

5.4. For further requirements, refer to “Residential Street Pavement Design” policy, latest edition.

6. **GENERAL NOTES:** General notes addressing compliance to CMSC, latest edition; notification/contact information; construction and work requirements; restrictions; utilities; infrastructure protection; item specials; access limits; et cetera. Refer to sample plan set on the City’s website. The Section 1-General Notes should be as written and other notes shall be as indicated in the other sections and applicable to the project. Do not compose notes that repeat the CMSC. Provide a “Legend” for symbols, abbreviations, and line designation.
  - 6.1.1. Provide General Notes as applicable per the ‘Subdivision (Private Development) Sample Plan Sheets located on Department of Public Service website. Note: Section Headings on the ‘sample’ sheet is for guidance on plan preparation and not to be repeated on the construction plans. The ‘REQUIRED PLAN NOTES’ should be as written and other notes shall be as indicated in the other sections and applicable to the project
  - 6.1.2. Do not comprise notes that are repetitive of or contrary to, the CMSC information.
  - 6.1.3. Any ‘As per Plan’ item must have a note or detail associated with it describing what differs from the standard CMSC item.
  - 6.1.4. Items that are completely unique and are not contained in the CMSC shall be designated as ‘Item Special’ and a note or detail included that fully describes the item.
  - 6.1.5. Provide a “Legend” for symbols, abbreviations, and line designation used uniformly throughout the plan.
7. **ESTIMATE OF QUANTITIES:** Complete and accurate listing of ALL items of work in the R/W shown on the plan:
  - 7.1. COLUMN 1: CMSC Item No. using the Construction Materials Specification, Columbus OH, latest edition.
  - 7.2. COLUMN 2: Quantity
  - 7.3. COLUMN 3: Unit of measure.
  - 7.4. COLUMN 4: Description as found in CMSC.
  - 7.5. Include demolition and removal items.
  - 7.6. Include items not covered in the City’s specification and notate on the plans (e.g. ODOT catch basin, culvert, guardrail)
  - 7.7. PARTS or PHASES. For projects that segment construction projects into Parts or Phases, provide a column in the Estimate of Quantities table for the quantity in each Part or Phase with a Total column.
8. **MAINTENANCE OF TRAFFIC (MOT):** When work in a plan involves connection to, or work on existing streets open to the public, a detailed MOT plan is required with the following items, in part or in full, as determined by work to be performed, and specific to the plan. The MOT shall be designed to allow the least inconvenience to motorist and pedestrians alike while offering the safest alternative.
  - 8.1. Detailed temporary traffic control notes shall precede the MOT detail drawings. Refer to the City website, Department of Public Service, Division of Design and Construction section for Temporary and Permanent Traffic Control Notes to be used.
  - 8.2. MOT detail drawings shall include phasing & all geometric features including existing pavement markings and signing.
  - 8.3. Any temporary pavement shall be shown and detailed.
  - 8.4. If phased, each phase shall include a description of the proposed work. Each MOT phase shall include all proposed construction in that phase and the completed construction of the previous phase.
  - 8.5. MOT plan shall extend a minimum of 200 feet beyond first and last temporary traffic control device on mainline street and a minimum of 200 feet on side streets. The proposed temporary traffic control shall be shown as bold lines along with the existing traffic control shown in lighter line weight.
  - 8.6. All temporary traffic control signs, drums, flashing arrow panels, portable changeable message signs, tapers, lane widths, pavement marking words with dimensions, temporary signal poles, signal heads, etc., shall be shown at appropriate locations (stations, sign legends, sign codes, sign sizes) shall be included.
  - 8.7. Signs, barricades, flashing arrow panels, portable changeable message signs, etc. and their locations may be identified by a ballooning-numbering system. All signs, barricades, etc. shall be shown on a key-legend format corresponding to each balloon. The key-legend shall be on the same plan sheet as the schematic and used uniformly throughout the plan. All signs shall include legend, sizing, color, codes, etc.

9. **PLAN & PROFILE (Street):** (minimum scale allowed 1"=60' horizontal; 1"=10' vertical)
- 9.1. **VIEW ORIENTATION:** "North Arrow" up but may be to the right to best fit the sheet.
- 9.2. **STREET PLAN:** Plan view with name of street, limits of the street by station number, intersections, lots with lot #, and "Reserves". The street plan shall match the Final Plat. Plan view shall include:
- 9.2.1. Benchmarks or any survey control points located within the project limits.
  - 9.2.2. Existing utility, infrastructure and features being connected to. Provide plan numbers of applicable record plans.
  - 9.2.3. **BASIS OF STATIONING:** Provide statement on each street plan & profile sheet.
  - 9.2.4. Label BEGIN project and END project for each street.
  - 9.2.5. **STATIONING** of each street at the BEGIN, END, along street centerline, at intersection with other streets, alleys, and (commercial) drives
  - 9.2.6. Survey BEARING of street centerline and LENGTH of each street.
  - 9.2.7. Centerline data ( $\Delta$ , R, T, L, etc.) on each street. When street has a horizontal curve, provide centerline data and bearing before and after curve.
  - 9.2.8. Curb data ( $\Delta$ , R, T, L, etc.) for each curve.
  - 9.2.9. Identify all control points with stationing such as PC, PT, etc.
  - 9.2.10. Locate and label tapers, transitions, deflections and tie-in points for pavement, pedestrian facilities, curbs, et cetera.
  - 9.2.11. Grade break station(s). Maintain a minimum of 300 feet between grade breaks or PVI's.
  - 9.2.12. Dimensions showing width of the following – street (face-of-curb or E/P), R/W (Right Of Way), easements, and each lot.
  - 9.2.13. R/W line (on both sides of the street) and easements clearly defined and labeled.
  - 9.2.14. Water line, bends, valves, and fire hydrants. Locate by station number, and offset. Show water service location to each lot.
  - 9.2.15. Storm sewer with pipe sizes. Storm structures with structure #, station location, reference dimension or offset left/right of street centerline.
  - 9.2.16. Indicate concrete encasement of storm sewer or other utilities with limits identified.
  - 9.2.17. "Reserves".
  - 9.2.18. Provide pedestrian facilities (sidewalk or shared-use-path) along "Reserves", along frontage of existing roads that this development adjoins but may be a backyard to a lot; and at intersections with ADA crossings labeled to be 'installed by Developer'.
  - 9.2.19. Location (station) of Pavement Relief joints
  - 9.2.20. Sanitary sewer pipe and structures.
  - 9.2.21. Street lights with station location.
  - 9.2.22. Electrical conduit crossings and pull-boxes. Locate by station, offset.
  - 9.2.23. Miscellaneous Items: Show utility sleeve locations, temporary barricades, temporary outlet ditches for under drain discharge from end of proposed pavement, temporary easements for storm sewer or under drain outlets, and other necessary easements – either platted or deeded.
  - 9.2.24. Show reference to other sheets numbers for "Detail" related to plan view (e.g. "see sheet 7 & 8 for Intersection Detail").
  - 9.2.25. Provide the plan # for work shown to be done by "others".
  - 9.2.26. Provide a "Legend" for symbols, abbreviations and/or coded notes.
  - 9.2.27. Show the limits of each 'PHASE' or 'PART' if construction is segmented on the plans
- 9.3. **STREET PROFILE:** Elevation view. Locate view on same sheet and below the "plan view" and include:
- 9.3.1. BEGIN project and END project station and elevations.
  - 9.3.2. Existing grade profile.
  - 9.3.3. Show and label street profile grade, % slope.
  - 9.3.4. Allowable street grade is 0.50% minimum and 7.5 % maximum.
    - 9.3.4.1. Minimum 300 feet between grade breaks (or P.V.I.'s)
    - 9.3.4.2. Bench street grade to maintain at the maximum specified cross-slope for ADA within boundary of ADA/Pedestrian Access Route (PAR) crossing streets.
  - 9.3.5. Vertical curve data with length of curve, station and elevations at PVI, PVC, along curve, and PVT.
  - 9.3.6. For intersecting streets, provide stations and elevations of intersecting centerline, P.C., curb lines/edge of pavement. Verify match with profile of the respective street.

9.3.7. Water line profile with elevations, pipe size, minimum cover, % slope, concrete backing and compaction requirements.

9.3.8. Utility crossings with name of utility, size, elevations.

**10. CROSS SECTIONS:** (Required when WIDENING an existing street).

- 10.1. Plans shall be on 1" grid, dotted ½-foot increment, with 5' foot vertical and 5' horizontal scale.
- 10.2. Intervals between regular sections shall normally be 50LF.
- 10.3. Stationing shall increase from bottom to top of sheet.
- 10.4. Show/label Ex. RW, Proposed RW, and easements beyond the R/W and work limits.
- 10.5. Show/label all proposed and existing underground utilities.
- 10.6. Limits of existing pavement shall be shown.
- 10.7. Existing features shall be shown in dashed lines & proposed features shall be solid lines.
- 10.8. Show/label fences, walls, walks, and paths.
- 10.9. Label proposed/ existing T/P (Top of Pavement) elevations.
- 10.10. Labeling of the sections shall follow the Standard Drawing for each area. Label slope grades.
- 10.11. Ditch line elevations & flow arrows.
- 10.12. Drive profiles with % slopes shall be included within the sections, preferably extending out to 25' beyond limit of drive work. Drive profiles not falling on a full section shall be shown on a partial section.

**11. DETAILS - INTERSECTION, CULDESAC, EYEBROW:** Plan view showing:

- 11.1. Show street intersections labeled with 'Streetname' and station of each street centerline at point of intersection and alignment angle.
- 11.2. Location of R/W.
- 11.3. Curb data. Station location of radius.
- 11.4. Elevations along curb/gutter or edge of pavement.
- 11.5. Flow pattern of surface drainage with % slope for streets and around curbs.
- 11.6. Grade break, station number, and pavement elevations, % slope of pavement.
- 11.7. Tapers with stationing and length/width dimensions.
- 11.8. Dimensioned widths of street, R/W, sidewalks, ramps, etc.
- 11.9. Note to "locate iron pin" at center point. Provide 'Permanent Marker Coordinate Table' with list of each intersection, Permanent Marker (PM) Number, 'Design' Easting/Northing and 'As-Built' Northing/Easting'.
- 11.10. Provide cul-de-sac joint sawing diagram or reference to the standard drawing.
- 11.11. Show, locate and label all infrastructure and structures (storm, sanitary, electrical, signal strain poles, power poles, street lights, control cabinets, pull boxes (electric & other utilities), valves (water, gas, etc.) within limit of work with top of casting elevations. Verify no interference and positive drainage.
- 11.12. Provide (lot) driveway locations. (Drives locations may be limited by ADA ramps). Notate on the Final Plat "No Vehicular Access" at final design location of ADA ramps so that the residential home is situated on the lot to avoid conflict of drive with ADA ramp.
- 11.13. ADA access paths & curb ramps. Detail on plan (scale 1" = 10'). (Also see Criteria for ADA)
- 11.14. Thicken walks, ramps, transitions to 8 inches at intersection per standard drawings.
- 11.15. Station the centerline of ADA route at street crossings. Give elevations of corner points of ramps and transitions.
- 11.16. Notate % running slope on ramps (5% to 7.7%) or transitions greater than 1.56%.
- 11.17. **CRITERIA FOR ADA**
  - 11.17.1. Fully comply with the latest edition of City of Columbus Rules and Regulations "Wheelchair Ramp Requirements" effective March 5, 2011.
  - 11.17.2. Infrastructure (poles, MH, pull-boxes, valves, etc.) located at an intersection can be affected by the ADA ramps. It is recommended that ADA ramps be located early in the design process with other utilities to reconcile any conflict.
  - 11.17.3. The PAR (Pedestrian Access Route) in the R/W (or easement if required) is defined as ADA compliant; minimum clearance of 48" wide ~~by 80" high~~ clear of any obstruction; and continuous across parcel frontage, crossing streets, alleys and drives.
  - 11.17.4. For street crossings, the ADA ramp shall be radial with the centerline aligned perpendicular to street curb with a running slope of 5% to 7.7% (from sidewalk (landing @ top of ramp) to street); located within the "Curb Ramp Design Boundary"; aligned with each other; have a detectable

warning and ADA compliant in accordance with the standard drawings. On non-curbed streets, an ADA access path may be installed rather than a ramp. On crossings of drives, alley or streets, show the PAR by phantom lines and maintain maximum specified cross-slope within boundary of the PAR.

11.17.5. Clearly show the ramp type with appropriate flare (walkable, non-walkable, etc).

11.17.6. Provide a “landing” where walks (private and/or public) intersect or a wheelchair turns.

11.17.7. Where a pedestrian crossing at an intersection is prohibited, no ramps are to be installed and required signing shall be in place or the required signs installed if none currently exist.

**12. STORM SEWER PROFILE:** Elevation view showing profile of storm sewer with:

12.1. Structure shall have numeric identifier tying structures to the plan views.

12.2. Structure number with station location.

12.2.1. Elevation of pipe IN/OUT and top of casting.

12.2.2. Type structure and type casting.

12.2.3. Other inlets (or knock-outs) into structure, with pipe size, direction of entry, and invert.

12.3. Pipe size with grade (% slope). Pipe length.

12.4. Street centerline @ street crossings labeled with name of street.

12.5. Backfill material and compaction requirement over each length of pipe between structures with limits stationed. Verify CMSC 912 backfill where pipe is under or within influence of streets.

12.6. Concrete encasement requirements (CMSC 901.12 and 910) with limits stationed.

12.7. Profile of existing grade and proposed grade.

12.8. Show the limits of each ‘PHASE’ or ‘PART’ above each profile if construction is segmented on the plans.

12.9. Other information as required by the Department of Public Utilities, Division of Sewers and Drains.

**13. PAVEMENT MARKING AND SIGNING:**

13.1. When existing roadway improvements are being performed, on a separate plan view, show all existing and proposed permanent traffic control items within the project limit. The plan shall indicate lane use, lane width and alignment as proposed.

13.2. Existing and proposed permanent pavement markings shall be shown - include only the existing markings that have NOT been removed within the project limits. Existing markings may include those outside the project limits for alignment purposes and shall include the area minimum 200’ past the projects limits on the mainline or to the nearest intersection and 200’ on side streets. All intersections shall be shown in full.

13.3. Items are to include, but not limited to, pavement markings; lane widths (dimensioned); signing (with symbols & lettering); and marked cross-walks along with the street name; R/W lines; curb line or edge of pavement, medians, islands, curb cuts, driveways and drive islands (e.g. RI/RO), sidewalks; ADA ramps; utility poles/manholes; street lighting; hydrants and valves.

13.4. For traffic control requirements at signalized intersections, refer to the City of Columbus Traffic Signal Design Manual.

13.5. Refer to the City website, Department of Public Service, Division of Design and Construction section for Temporary and Permanent Traffic Control Notes to be used.

13.6. All projects shall comply with the requirements set by supplemental specification called (SS-1630) *Installation of Ground Mounted Signs and Sign Supports:*

**14. TRAFFIC SIGNALS:**

14.1. Refer to the City of Columbus Traffic Signal Design Manual.

14.2. Obtain additional information by contacting the Department of Public Service, Division of Design and Construction-Signal Design Staff.

**15. LIGHTING:** (if shown separately from Street Plan)

15.1. Location and station of street lights, street crossings, pull boxes, conduit, conductors.

15.2. Provide stationing and offset on pull boxes. Verify no interference with other structures.

**NOTE:** Refer to City of Columbus Website - ‘Sample E-Plan’ sheets for format.

**ELECTRONIC IMAGE FILE**  
**FOR**  
**E-PLANS ON CD**

1. All projects shall have a compact disc submitted for each plan submittal of the project.
2. The disc shall contain a Tiff image of each sheet of the plan set being submitted.
3. Each disc shall be submitted in a transparent, hard plastic case that is labeled with the project name, E-Plan number, and Consultant name.
4. All images must be submitted "Right Side Up", meaning viewable as if you are reading them.
5. All images must be submitted at: 1 BIT with compression of: CCITT Group 4 FAX and a resolution of 300dpi (min). (TIFF MSB CCITT G4 MSB.tif) This is (black line & text) on a white background. (No color images due to size constraints).
6. Each plan sheet Tiff file shall include the project number and the sheet number as shown below:

***E0plan number\_(three digit sheet number).tif***

***NOTE: The "0" after the "E" is a zero not the letter "O".***

***Examples:***

***At INITIAL submittal***

***Once PlanNumber is assigned (#1553 in this example)***

***E0XXXX\_001.tif***

***E01553\_001.tif***

***E0XXXX\_002.tif***

***E01553\_002.tif***

***E0XXXX\_003.tif***

***E01553\_003.tif***

***Etc.***

7. At the time the mylars are submitted for signature, include with that submittal a CD containing a TIFF image with all final plan features of each plan sheet (as described and labeled above) and the base map in .DWG format. If the size of the plan set is too large to fit on one CD, then submit a CD with the TIFF images and one with the .DWG file.
8. Include on the CD, the electronic document or image of the written summary of responses to the (Division of Design & Construction) comments from the previous review.

**If you have any questions concerning these standards, you may contact Don Tobias at 614-645-8799 Division of Design and Construction.**

*Street Construction Plans - The Division of Design and Construction requires that both paper and digital copies (.tif) of each plan sheet be submitted concurrently with each submission for plan review.*

*A failure to provide this digital information will result in the Division's refusal to accept said plan submissions for review. All .DWG format features shall be prepared in conformance with the City's adopted Digital Submission Standards. Any submissions determined to be incomplete, inaccurate, or non-compliant shall require correction by the applicant before the E-Plan will be fully approved and/or signed by the City.*